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**THE HYMENOPTERA COLLECTED BY DR. A. DONALDSON SMITH IN
NORTHEAST AFRICA.**

BY WILLIAM J. FOX.

The following list includes only the Aculeate Hymenoptera brought home by Dr. Smith. The collection includes, besides these, perhaps thirty species of ants and parasitic forms which I am obliged to pass unnoticed for the present. Inasmuch as I have had to rely entirely on descriptions in classifying the collection, I beg to offer that fact as an apology for any erroneous identifications that may have been made.

The specimens were collected on a journey from Berbera through Somaliland to Lake Rudolf, thence to a point on the east coast,¹ and, with many other specimens, have been presented to the Academy of Natural Sciences of Philadelphia by Dr. Smith.

MUTILLIDÆ.

Apterogyna Latreillei Klug.

One specimen (♀). Berbera, July 6, 1894.

Mutilla pedunculata Klug.

Two male specimens. Berbera, July 4, 1894, and Shebeli, September 1.

Mutilla sinuata Oliv. (=villlosa Klug.).

One specimen (♀). Sheikh Husein, October 22, 1894.

Mutilla tricolor Klug.

One ♀ specimen. Sheikh Husein, October 29, 1894.

Mutilla guineensis Fabr.

One ♀ specimen from Sheikh Husein, October 1, 1894.

Mutilla mephitis Sm.

One specimen (♀). Laga, November 30, 1894.

Mutilla leda n. sp.

♀.—Head, legs and abdomen black, the latter velvety; thorax obscure rufous; head, except a longitudinal medial streak and the

¹ See an article by Dr. Smith in *The Geographical Journal* for August and September, 1896.

cheeks, medially, sides of thorax, legs, transverse spot at apex of first dorsal, three spots on second dorsal (one anteriorly in the middle somewhat ovate, and two larger ones placed transversely near the apical margin of the segment), a medial spot on the third, fourth and fifth coalescing more or less, the second segment along the extreme sides, a small spot on the apical margins of the second, third and fourth at the sides and the apical margins of ventrals 2-4 entirely, of silvery pubescence; above the body is clothed with long, erect, sparse black hairs, which, on the ventral surface, are pale; head about as wide as the broadest part of the thorax, with deep, coarse punctures; eyes subovate; mandibles furrowed longitudinally and toothed within before the apex; flagellum strongly acuminate, the first and second joints about equal in length; occiput not cristate; thorax long, somewhat pyriform, broadest a little anterior to the middle, the lateral borders not dentate; the thorax above scabrous; evidently no scutellar scale present, or else it is indistinguishable from the coarse sculpture of the upper surface of thorax; spines of the legs black, calcaria pale testaceous, those of the hind and medial tibiæ pectinate within; first segment of abdomen constricted at apex, not continuous with the base of the following; in the middle transversely cristate, the portion before the crista very flat, ventrally with a short and strong carina, which is somewhat emarginate medially; second segment with very large punctures, ventrally shining with the punctures more distinct and at the base with a short, central, longitudinal carina; last dorsal smooth and shining, at least medially, without a pygidial area. Length, 12 mm.

One specimen. Near Gelani, October 27, 1894.

This species is apparently close to *M. doriae* Magr., but differs in the non-cristate occiput and absence of scutellar scale.

***Mutilla somalica* n. sp.**

♀.—Head ——?; thorax obscurely rufous; legs and abdomen black, the latter red beneath; the second dorsal segment in greater part with reddish-orange pubescence forming a maculation as shown in the figure; a spot in the center of dorsals 3-5, a narrow transverse one on the apical margins of dorsals 2-5 at the sides, and apical margins of ventrals 2-5 with silvery pubescence; legs with pale pubescence, the rest of the body clothed with long, erect hairs, those above dark, those below pale; thorax robust, not twice as long as it is broad at base, coarsely cibrose above, the lateral margins irregu-

lar; scutellar scale wanting; tibiæ and tarsi strongly spinose, the spines black; calcaria white, pectinated within; first segment of abdomen constricted at apex, beneath with a strong, bidentate or emarginate carina; second ventral with a short, median, longitudinal carina basally and together with the sides of its dorsal moiety with large separated punctures, those of the remaining ventrals much finer and closer, pygidial area large, convex, longitudinally striato-punctate, the sculptures strongest basally and becoming obsolete at apex. Length (without head) 10 mm.



FIG. 1.

Abdominal markings. One specimen, from which the head is, unfortunately, missing. *Mutila somalica*. The maculation of the second dorsal segment is apparently so different from any of the African Mutillids that I have thought it well to describe the species, even though the specimen be in poor condition.

From Finik, December 15, 1894.

SCOLIIDÆ.

Scolia ruficornis Fabr.

Two ♀ and two ♂ specimens. Hargesa and The Haud, July 21; Sheikh Husein, October 3, 1894.

Elis aureola Klug.

Two females from Sheikh Husein, collected on September 21 and 27.

Cosila Donaldsoni n. sp.

♀.—Deep black, shining, the last two abdominal segments rufous; wings black, strongly violaceous; pubescence grayish; head strongly punctured, closely so on the front, sparsely on the vertex and occiput; clypeus more finely punctured than the front, somewhat carinate down the middle, its anterior margin tridentate; mandibles scarcely punctured, scape and pedicellum shining, sparsely punctured, the flagellum opaque, the joints slightly prominent at apex beneath; ocelli deeply pitted, indistinct; pronotum seabrous; dorsulum with irregular, coarse punctures, transversely smooth just behind the pronotum, and a little shorter than the scutellum; scutellum seabrous, somewhat triangular, truncate posteriorly; middle segment above very finely striato-punctate, becoming more coarsely so posteriorly; posterior face with shallow punctures and indistinct

striations, sides obliquely striated, the central longitudinal furrow of the middle segment is wider by far on the upper surface, fore tarsi distinctly combed; tarsal claws cleft; hind femora somewhat angular beneath; third submarginal cell larger than the second, the third transverso-cubital nervure received by the marginal cell at its apex; abdomen with strong, sparse punctures, those at the apex of 2, 5, and bases of 3, 5 closer; punctures of ventral segments larger: pygidial area striato-punctate; first dorsal truncate anteriorly, not carinate; spines of the legs and calcaria whitish. Length, 18 mm.

Sheikh Husein, October 8, 1894. Easily distinguished by the red tip of abdomen. In the cleft claws and pectinate fore tarsi this species appears more closely allied to the American than to the Australian species of *Cosila*.

POMPILIDÆ.

Pompilus dimidiatus Fabr.

Berbera, June 5; Laga, November 30. Two specimens.

Pompilus viaticus Fabr.

One specimen. Daro Mountains, November 19.

Pompilus pulcher Fabr.

One specimen. Terfa, August 13.

Pompilus umbrosus Klug.

Berbera, July 4; Lafarug, December 7. Three specimens.

Pompilus Tamisieri Guér.

One specimen. Aimola, March 16, 1895.

Pompilus (Pedinaspis ?) somalicus n. sp.

♀.—Head, antennæ, thorax and legs ferruginous; mandibles at tip and abdomen black; wings yellow, a slender black fascia crossing the anteriors in the region of the basal vein and a very broad fascia just before the apex; the apex pale; head rather flat, the occiput bearing a sharp, transverse ridge; frontal impressed line feeble; clypeus flat, shining, its fore-margin slightly emarginate or incurved, as is likewise the labrum, which projects a little and is fringed sparsely with long hairs; antennæ inserted at base of clypeus, tolerably long and slender, much shorter than the thorax, however, the first joint nearly as long as the scape, which is compressed; thorax elongate; pronotum a little longer than the dorsulum, its hind margin arcuate; scutellum shorter than dorsulum, somewhat more than twice as long as the metanotum (postscutel-

lum); middle segment subtruncate posteriorly, entire, above with a central longitudinal impressed line, posteriorly with rather coarse

transverse striæ, which extend partly on the sides; legs tolerably stout, scarcely spinose; fore tarsi without comb; claws with a large, sharp tooth within, almost cleft; longer spur of hind tarsi less than one-third as long as the first hind tarsal joint; marginal cell pointed at tip; second and third submarginals about equal in size, both receiving their recurrent nervure slightly before the middle; basal vein joining the submedian cell before its

apex; submedian cell of hind wings terminating before the origin of the cubital vein; abdomen not compressed, obscurely testaceous beneath; dorsals 1, 3 and 4 with a large lateral spot of pale pubescence, which is also indicated laterally on the ventral segments. Length, 17 mm.

One specimen. Near Finik, December 6, 1894. Is apparently distinct from all the African species of *Pompilus* in the bifasciate fore-wings. I refer it to Kohl's subgenus *Pedinaspis* with some doubt, inasmuch as the abdomen is not compressed, and the claws rather more cleft than dentate.

Salius (Cyphonyx) flavicornis Fabr.

One specimen. Sheikh Husein, October 5, 1894. In this specimen, a ♀, only the tibiæ are reddish.

Salius (Hemipepsis) atropos? Sm.

I refer, with some doubt, two ♂ specimens taken at Sheikh Husein, October 10, 1894. Smith only describes the female, his specimens having come from Sierra Leone.

SPHECIDÆ.

Sphecodes (Chlorion) xanthocerus var. maxillaris Pal.

One ♀ specimen. The Haud, July 21, 1894.

Sphecodes (Chlorion) regalis Sm. var.

Two females. Ardeh, July 14; Hargesa, July 18, 1894. In this form the thorax is entirely black; the wings black with violaceous reflections, the apex of the hind pair not pale; head, antennæ, fore-legs entirely, and the femora and tibiæ of the medial pair, reddish; abdomen metallic and purplish-blue.

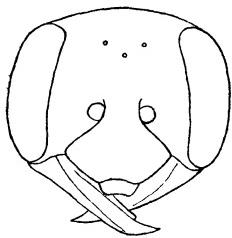


FIG. 2.

Head of *Pompilus somalicus*.

Sphex (Parasphe) marginatus Sm.

Sheikh Husein, October 1, 1894. One specimen. The petiole is black in this specimen.

Sceliphron Spinolæ Lep.

Two females. Sheikh Husein, October 15, 1894.

Sceliphron spirifex Linné.

Two females. Sheikh Husein, October 1 and 15, 1894.

Sceliphron violaceum Fabr.

One specimen. Sheikh Husein, October 15, 1894.

Ammophila ferrugineipes Lep.

One ♀ specimen. Sheikh Husein, October 8, 1894.

Ammophila lugubris Gerst.

Two females. Sheikh Husein, September 20 and 28, 1894.

Ammophila holosericea Fabr.

Dabulli, September 16, 1894. Two ♂ specimens.

Ammophila insignis Sm.

Turfer. One specimen, August 13, 1894.

Ammophila beninensis ? Pal.-Bve.

I refer doubtfully to this species two specimens from Sheikh Husein, September 30 and October 5. They agree fairly well with Beauvois' description and figure of *beninensis*, but the tibiæ and tarsi and four anterior femora are reddish.

Bembex Dahlbomi Hdl.

Milmil, July 28, 1894. Four specimens.

Sphecius Quartinae Grib.

Only the male of this species has been described, and it is not certain that the female specimen before me from Berbera, July 4, 1894, is really *Quartinae*. I venture to describe it as such, however.

♀.—Short and stout, ferruginous, except the clypeus, labrum, mandibles, except apex (which is black), front beneath and scape and apical antennal joints beneath, which are yellow; apical margins of the dorsal abdominal segments narrowly fuscous; wings testaceo-hyaline, nervures reddish, marginal cell lanceolate and narrow; second submarginal greatly narrowed above, its width at this point slightly greater than that between the stigma and the first transverso-cubital nervure on the marginal nervure; third submarginal scarcely narrowed above; clypeus convex, transverse, its fore-margin a little in-

curved; antennæ scarcely as long as thorax, thickened apically, the first joint of flagellum as long as the two following united; the head, as a whole, is fairly well punctured; dorsulum and scutellum impunctate or with exceedingly fine punctures, the middle segment with more distinct punctures; legs robust, strongly spinose; abdomen finely and rather closely punctured, the apical margins of the segments smooth in a transverse sense; sixth dorsal strongly punctured, not very strongly ridged laterally, ventrals rather flat, the second feebly convex. Length, 22 mm.

Liris haemorrhoidalis Fabr.

Sheikh Husein, September 30, 1894. One male specimen.

Notogonia apicalis n. sp.

♂.—Black; last three or four abdominal segments red; mandibles and tegulae, in part, obscurely rufotestaceous; face, clypeus, cheeks, fore-femora and thorax beneath, and apex of middle segment with dense silvery pubescence; the sides of thorax, legs and abdomen with a sericeous pile, which, when the insect is held in certain lights, appears on the abdomen to form apical bands on the segments; head finely and closely punctured; distance between the eyes above nearly as great as the length of the third and fourth antennal joints, much greater than the length of the second and third; flagellum acuminate apically, thickest toward base, the first joint a little longer than the second and somewhat curved; clypeus depressed transversely before the anterior margin, the latter a little prominent in the middle; dorsulum with tolerably strong and close punctures, the scutellum with the punctures much finer and sparser,

shining; mesopleuræ with shallow, somewhat separated punctures, the episternal suture of the mesothorax distinct and strongly foveolated; middle segment truncate behind, above coarsely and transversely rugose, divided longitudinally by a strong medial carina, which terminates before the apex, sides coarsely and obliquely striated; legs simple, not peculiarly modified; wings fusco-hyaline, nervures black; marginal cell obliquely truncate at tip; second submarginal almost triangular, much narrowed above, the width at the top equal to about one-half the distance between the recurrent nervures on the cubital nervure; abdomen impunctate, the second

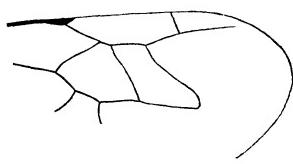


FIG. 3.
Venation (fore wing), *Notogonia apicalis*.

ventral segment with the transverse basal depression well marked. Length, 12 mm.

One specimen. Sheikh Husein, September 30, 1894. Is apparently related to *N. radamae* Saussure, from Madagascar, and may be identical with the var. *b.*, mentioned by that author. The radial (marginal) cell of *radamae* is said to be perpendicularly truncate, whereas in *apicalis* it is obliquely so. It also agrees fairly well with the description of *Larra rubella* Smith, of which only the female is described.

Misophus ctenopus Kohl.

Berbera, July 4, 1894. One ♀ specimen.

Tachysphex fluctuatus Gerst.

One male specimen. Same locality as the preceding species.

Helioryctus melanopyrus Sm.

One specimen, a female. Near Lake Stephanie, June 20, 1895. It is somewhat larger than the specimen described by Smith, and measures 14 mm. in length. *Helioryctus* is, perhaps, synonymous with *Sericophorus* Sm. (non Shuck.) = *Tachyrhostus* Sauss. *Sericophorus* Sm. has priority over *Tachyrhostus*, having been described on p. 33, *Ann. & Mag. Nat. Hist.*, 1851, VII.

Astatus boops Schr.

One male specimen from Sheikh Husein, October 5, 1894.

Oxybelus lamellatus Oliv.

Berbera, July 4, 1894. One specimen.

EUMENIDÆ.

Eumenes Lepeletieri Sauss.

Three specimens. Sibbe, August 2; Terfa, August 15; River Darde, September 9, 1894.

Eumenes maxillosa DeG.

One large female. Berbera, July 3, 1894.

Eumenes dimidatipennis Sauss.

One ♀ specimen without precise locality or date of capture.

Synagris calida Linné.

Luku, September 17, 1894. Two specimens.

Synagris tropidia Schlett.

Sheikh Husein, October 8, 1894. One ♀ specimen.

Rhynchium laterale Fabr.

Sheikh Husein, October 7. One male.

Odynerus metemmensis Magr.

One specimen, without date of capture or locality.

VESPIDÆ.

Polistes marginalis Fabr.

Sheikh Husein, October 5 and 9. Two specimens.

Belonogaster colonialis Kohl.

One male specimen. Terfa, August 21.

Belonogaster Meneleki Grib.

Sheikh Husein, October 1 and 5; Laga, November 30, 1894.

APIDÆ.

Colletes sp.

Two specimens of a species having the base, apex and sides of the first dorsal segment and the apex of the three following with pale ochraceous pubescence, beneath which the segments are brownish-testaceous. From Sheikh Husein, September 29, 1894.

Nomia nulpina Gerst.

A ♂ specimen which is probably this species. Sheikh Husein, October 7, 1894. Another species, perhaps new and from the same locality, has the hind-legs almost simple and the apical margin of dorsal segments 1-5, whitish.

Anthophora quadrifasciatus DeG.

Sheikh Husein, September 29, 1894. A specimen of the variety *alternans* Klug.

Anthophora concinnus Klug.

One specimen; no precise locality or date of capture.

Anthophora albigenus Lep.

One specimen, a variety, of this species. Daro Mountains. November 19, 1894.

Eucera ruficornis Fabr.

Sheikh Husein, October 7, 1894. One male specimen.

Crocisa abyssinica Rads.

One female specimen. The Haud, July 21, 1894.

Xylocopa oblonga Sm.

One specimen. Sheikh Husein, October 3, 1894.

Xylocopa fulvohirta DeG.

Two females. Meo, October 25, 1894.

Xylocopa cafra Latr.

One female specimen. Same locality and date as the preceding.

Xylocopa inconstans Sm.

One female specimen. Sheikh Husein, October 1, 1894.

Xylocopa olivacea Fabr.

One male. Near Lake Stephanie, June 20, 1895.

Xylocopa aestuans Fabr.

Berbera, July 4. One female specimen.

Xylocopa Gribodoi Magr.

Sheikh Husein, October 10; Meo, October 25, 1894. Three female and one male specimens. The latter sex is apparently undescribed.

♂.—Black; head, thorax, anteriorly and beneath, dorsal segments at the sides, particularly segments 1, 4, 5, 6, and ventrals 3–6, with pale pubescence, that on the clypeus white; the legs with black pubescence, the anterior pair in addition with a streak of white pubescence, which is more evident at first joint of tarsi; wings hyaline at base, the apical third fuscous with purplish iridescence; nervures black throughout; antennæ entirely black; eyes large; face narrow; the ocelli are an equilateral triangle; dorsum sparsely punctured medially, as are likewise dorsal segments 2–4, which at the sides are closely punctured; dorsal 5 and 6 closely punctured throughout; the sixth segment medially, and the last at the sides with black pubescence, that on the fore-tarsi beneath slightly brownish. Length, 20 mm.

With the exception of the wings and pale color of the pubescence on anterior part of thorax, the male is, superficially, similar to the female.

Ceratina fastigiata n. sp.

♀.—Blue-green, the head and thorax slightly the darker; legs black; the base of the hind tibiae externally and a broad oblong spot on the clypeus yellowish; head with large, deep and more or less confluent punctures, which on the clypeus are separated and rather sparse; mandibles and labrum black, the latter convex and coarsely rugose; antennæ black, the flagellum clavate and slightly testaceous beneath; pronotum not dentate laterally, rather sharply

margined; dorsulum convex, its punctures larger than those of head and distinctly separated; scutellum similarly punctured, the mesopleuræ a little less strongly so; upper and posterior surfaces of middle segment separated by a ridge, above the ridge finely rugose, on the sides with large punctures, similar to those on the fourth dorsal segment, below the ridge, the punctures finer, closer and evener; abdomen with the segments rather strongly constricted at the sutures, the apical segment suddenly constricted and drawn out into a point apically, the first, second and third segments punctured about like the dorsulum, the remaining dorsals decidedly more finely punctured; the ventrals are punctured like the first dorsal, the apical margin of the second, and the base and apex of the second to fifth, smooth and black; fore legs naked and shining, the others with pale pubescence, as are likewise the ventral abdominal segments, but sparsely; wings hyaline, darker apically, nervures and stigma black; tegulæ and shoulder tubercles dark testaceous. Length, 8 mm.

One specimen from Daro Mountains, November 20, 1894.

Allodape canina Sm.

Two specimens. Tulu, November 23, 1894.

Megachile basalis Sm.

One female specimen. Ile, April 9, 1895.

Megachile colorata n. sp.

♀.—Black; scape of antennæ, tegulæ, legs except coxæ, and the first three segments of abdomen red; wing yellow at base and broadly along the costa, otherwise fuscous with purplish iridescence,

the veins included in the yellow portion, reddish, those in the fuscous portion dark; head with strong confluent punctures, posteriorly deeply incurved, the occiput margined; face between the antennæ prominently convex, and meeting the clypeus so as to appear continuous with it; the clypeus slopes from its middle to apex, which is broadly truncate, the sloping portion smooth (or nearly so) and shining, otherwise the clypeus is coarsely punctured; mandibles striato-punctate, furrowed from middle to apex, slightly broader at apex than at base, narrowest medially, bearing a tooth within and four at apex; dorsulum with strong



FIG. 4.

Mandible, *Megachile colorata*.

punctures, which, when the insect is held in certain positions, give the dorsulum a transversely and irregularly striated appearance; punctures of the scutellum a little closer, those of the mesopleuræ more distinct; legs robust, the hind tibiæ much thickened toward apex; abdomen sparsely punctured, the apical margins of dorsals 1-4 transversely depressed at apex, at which place the punctures are closer; front, base of clypeus, a fringe on labrum, thorax above, on center of mesopleuræ and base of middle segment, and a fringe at apex of dorsals 1-3, ochraceous; beneath the wings, extending to sides of middle segments, a spot on each side of the first three or four dorsals and the ventral scopæ, whitish; on the cheeks and thorax beneath the pubescence is pale; legs and last two or three dorsals covered with a short ochraceous pubescence, that on the tarsi the longer. Length, 13-16 mm.

Two specimens. One without precise locality or date of capture; the other, the larger specimen, is marked, "From nest in insect tin, November 28, 1894," and is from near Laga. The red color on abdomen in the larger specimens is more distributed than in the smaller.

***Megachile crenulata* n. sp.**

♂.—Black; first joint of fore tarsi whitish; head strongly and closely punctured above, more finely so on the front; mandibles longitudinally striato-punctate, tridentate at apex; dorsulum and scutellum strongly, closely and evenly punctured; mesopleuræ per-

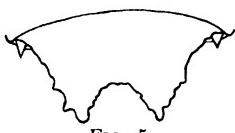


FIG. 5.

Last dorsal abdominal segment, *Megachile crenulata*.

The apical margin of all the segments (except the last) strongly depressed and testaceous; last dorsal strongly emarginate and strongly crenulated; at the base of the last ventral on each extreme side is a strong tooth; head in front, dorsulum, middle segment and base of first dorsal with long, brownish or fulvous pubescence, which also appears to a certain extent on scutellum, apical segments and the legs, where it is more or less mixed with paler hairs; cheeks, fore tarsi, thorax beneath, first dorsal laterally, and the ventrals more sparsely, with long, pale pubescence; the first medial and hind tarsal joints have a fringe of this pubescence; apical margins of dorsals 2-5 with

perhaps a little more strongly punctured; tibiæ cibrose externally; fore coxæ with a long, obtuse tooth; fore tarsi with the first joint flattened and broadened, its anterior margin sinuate medially; abdomen closely punctured above, beneath more sparsely,

obscurely fulvous pubescence, which above in the middle becomes paler; wings subhyaline, nervures and stigma black. Length, 13 mm.

Sheikh Husein, September 24, 1894. The only specimen obtained is somewhat the worse for wear, thereby making an accurate description of the pubescence rather difficult.

Trigona Beccarii Grib.

One specimen. Sheikh Husein, September 29, 1894.

Apis mellifica Linné.

Terfa, August 15, 16, 1894. Four specimens.

NOVEMBER 8.

The President, SAMUEL G. DIXON, M. D., in the Chair.

Twenty-three persons present.

NOVEMBER 10.

The President, SAMUEL G. DIXON, M. D., in the Chair.

Twenty-six persons present.

A paper entitled "The Bones, Muscles and Teeth of *Tarsius fusco-manus*," by Harrison Allen, was presented for publication.

NOVEMBER 17.

The President, SAMUEL G. DIXON, M. D., in the Chair.

One hundred and nine persons present.

Mr. Edwin S. Balch read a paper entitled "Ice Caves and the Causes of Subterranean Ice," (No abstract.)

NOVEMBER 24.

The President, SAMUEL G. DIXON, M. D., in the Chair.

Thirty-seven persons present.

R. A. Philippi of Santiago, Chili, was elected a Correspondent.

The following was ordered to be printed:—